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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/560,716

Applicant(s)

ZHOU ET AL.

Examiner

ROBERT E. CARTER III

Art Unit

2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 and 17-22 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 21 and 22 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

These claims recite nothing more than a computer program, which is non-statutory subject matter. Please refer to pages 53-55 of the 35 USC 101 interim guidelines for further instructions on claiming computer programs in a statutory manner.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 3 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 3 depends upon claim 1 which states that the second page remains displayed in the second display region while the third page is displayed in the first display region.

Paragraph [0042] of the specification, which pertains to the embodiment of claim 3 wherein the pages are displayed on respective alternate lines of a display screen, states that the second display region which was displaying the second page is blanked out when the third page is written into the first display region.

Therefore, the specification does not support the limitations of claim 3, rendering claim 3 non-enabled.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 5-8, and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Kuno et al. (US Patent # 5,467,102).

As for claim 1, Kuno et al. teaches:

A method (Fig. 7B) for displaying successive first (Fig. 7B, P1), second (Fig. 7B, P2) and third (Fig. 7B, P3) pages of an electrophoretic reading device (Fig. 1, #100), comprising:
displaying the first page on a first display region (Fig. 7B, A) of the electronic reading device (Fig. 7B, first picture);

displaying the second page on a second display region (Fig. 7B, B) of the electronic reading device (Fig. 7B, first picture); and
in response to a next page command (Fig. 7B, #7), displaying the third page on the first display region in place of the first page, while the second page remains displayed on the second display region (Fig. 7B, second picture, Col. 6, lines 17-28).

As for claim 2, Kuno et al. teaches:

The method of claim 1, further comprising:

In response to a further next page command (Fig. 7B, #7), displaying a fourth page on the second display region in place of the second page, while the third page remains displayed on the first display region (Fig. 7B, third picture, Col. 6, lines 17-28).

As for claim 5, Kuno et al. teaches:

The method of claim 1, wherein:

The first and second display regions comprise respective display screens (Col. 3, lines 26-28).

As for claim 6, Kuno et al. teaches:

The method of claim 1, wherein:

a user provides the next page command after reading the first page and prior to starting the reading of the second page.

As shown in Col. 6, lines 17-21, the device is capable of updating the first display region any time the user command is given, and therefore is inherently capable of being updated before the user starts reading the second page, or even before or during the reading of the first page if the user decides not to read the entire first page.

As for claim 7, Kuno et al. teaches:

The method of claim 1, wherein:

a user provides the next page command after reading the first page and prior to completing the reading of the second page (Col. 6, lines 17-28).

As for claim 8, Kuno et al. teaches:

An electronic reading device (Fig. 1, #100) for displaying successive first (Fig. 7B, P1), second (Fig. 7B, P2) and third (Fig. 7B, P3) pages, comprising:
first (Fig. 7B, A) and second (Fig. 7B, B) display regions; and
a control (Fig. 3, #13) for controlling the first display region to display the first page thereon, and for controlling the second display region to display the second page thereon (Fig. 7B, first picture, Col. 4, lines 20-29);
wherein, in response to a next page command (Fig. 7B, #7), the control controls the first display region to display the third page thereon in place of the first page (Fig. 7B, second picture, Col. 4, lines 15-29, Col. 6, lines 17-28).

As for claim 21, this claim differs from claim 1 only in that claim 1 is a method and claim 21 is the method of claim 1 implemented on a computer. Therefore, for the purposes of examination, claim 21 is rejected in the same manner as claim 1 above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuno et al. (US Patent # 5,467,102).

As for claim 4, Kuno et al. teaches all the limitations of claim 1.

Kuno et al. does not teach the first and second display regions comprising respective regions of a display screen, however, Kuno et al. does teach using both the first and second display regions as a single display region to display a single image (Fig. 8A, Col. 7, lines 15-18).

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to make the first and second display regions comprise respective regions of a single display screen because Applicant has not disclosed that making the first and second display regions comprise respective regions of a single display screen provides an advantage, is used for a particular purpose, or solves a stated problem. Furthermore, one of ordinary skill in the art would have expected Applicant's invention to perform equally well with either the two separate display screens taught by Kuno et al. or the claimed single display screen because both

provide the function of displaying the first and second display regions equally well given an equal total display area.

Therefore, it would have been an obvious matter of design choice to modify Kuno et al. to obtain the invention as specified in claim 4.

6. Claims 9-15, 17-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuno et al. (US Patent # 5,467,102) in view of Machida et al. (US Patent # 6,753,844).

As for claim 9, Kuno et al. teaches:

A method (Fig. 7B) for displaying successive first (Fig. 7B, P1), second (Fig. 7B, P2) and third (Fig. 7B, P3) pages of an electrophoretic reading device (Fig. 1, #100), comprising:

displaying the first page on a first display region (Fig. 7B, A) of the electronic reading device (Fig. 7B, first picture);

displaying the second page on a second display region (Fig. 7B, B) of the electronic reading device (Fig. 7B, first picture); and

in response to at least one user command (Fig. 7B, #7), displaying the third page on the first display region in place of the first page by providing voltage waveforms to the first display region (Fig. 7B, second picture, Col. 6, lines 17-28),

Kuno et al. does not teach the voltage waveforms including shaking and driving pulses.

In the same field of endeavor (i.e. planar type displays) Machida et al. teaches an electrophoretic display (Fig. 1, #10) with a control (Fig. 12, #14, 16) for providing voltage waveforms (Fig. 9) to the pixels *each voltage waveform including at least one shaking pulse* (Fig. 9, INITIALIZING DRIVE pulse) *and a subsequent drive pulse* (Fig. 9, DISPLAYING WHITE or DISPLAYING BLACK pulse).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second display regions and control of Kuno et al. with the display region and control of Machida et al., to provide a clear, high contrast display with no image degradation. (Machida, Col. 2, lines 49-56, Col. 3, lines 16-35).

As for claim 10, Kuno et al. as modified by Machida et al. teaches:

The method of claim 9, wherein:

the at least one user command (Kuno et al., Fig. 7B, #7) *includes an initialization part* (Machida et al., Fig. 9, INITIALIZING DRIVE) *and a display part* (Machida et al., Fig. 9, DISPLAYING WHITE or DISPLAYING BLACK);

the at least one shaking pulse is provided in response to the initialization part; and

the drive pulse is provided in response to the display part (Fig. 9 of Machida clearly shows at least one shaking pulse and drive pulse during each INITIALIZING DRIVE and DISPLAYING WHITE or DISPLAYING BLACK period).

As for claim 11, Kuno et al. teaches:

The method of claim 9, wherein:

a user provides the at least one user command after reading the first page and prior to starting the reading of the second page.

The precise timing of user actions cannot be controlled. As shown in Col. 6, lines 17-21, the device is capable of updating the first display region any time the user command is given, and therefore is inherently capable of being updated before the user starts reading the second page, or even before or during the reading of the first page if the user decides not to read the entire first page.

As for claim 12, Kuno et al. teaches:

The method of claim 1, wherein:

a user provides the at least one user command after reading the first page and prior to completing the reading of the second page (Col. 6, lines 17-28).

As for claim 13, Kuno et al. teaches:

An electronic reading device (Fig. 1, #100) for displaying successive first (Fig. 7B, P1), second (Fig. 7B, P2) and third (Fig. 7B, P3) pages, comprising:
first (Fig. 7B, A) and second (Fig. 7B, B) display regions; and
a control (Fig. 3, #13) for controlling the first display region to display the first page thereon, and for controlling the second display region to display the second page thereon (Fig. 7B, first picture, Col. 4, lines 20-29);
wherein, in response to at least one user command (Fig. 7B, #7), the control controls the first display region to display the third page thereon in place of the first page (Fig. 7B, second picture, Col. 4, lines 15-29, Col. 6, lines 17-28) *by providing voltage waveforms to the first display region* (Fig. 7B, second picture, Col. 6, lines 17-28).

Kuno et al. does not teach the voltage waveforms including shaking and driving pulses. In the same field of endeavor (i.e. planar type displays) Machida et al. teaches an electrophoretic display (Fig. 1, #10) with a control (Fig. 12, #14, 16) for providing voltage waveforms (Fig. 9) to the pixels *each voltage waveform including at least one shaking pulse* (Fig. 9, INITIALIZING DRIVE pulse) *and a subsequent drive pulse* (Fig. 9, DISPLAYING WHITE or DISPLAYING BLACK pulse).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second display regions and control of Kuno et al. with the display region and control of Machida et al., to provide a clear, high contrast display with no image degradation. (Machida, Col. 2, lines 49-56, Col. 3, lines 16-35).

As for claim 14, Kuno et al. as modified by Machida et al. teaches all the limitations of claim 13.

Kuno et al. does not teach the voltage waveforms including a reset, shaking, and drive pulse.

In the same field of endeavor (i.e. planar type displays) Machida et al. teaches an electrophoretic display (Fig. 1, #10) with a control (Fig. 12, #14, 16) for providing voltage waveforms (Fig. 9) to the pixels *each voltage waveform includes a reset pulse following the at least one shaking pulse and preceding the drive pulse*.

Col. 7, lines 38-40 of Machida et al. teaches superimposing a DC reset pulse over the initialization drive pulse. However, Machida et al. is silent as to the duration of either pulses. Therefore it would have been obvious to one of ordinary skill in the art at

the time the invention was made to superimpose a short DC reset pulse in the middle of a long initialization drive pulse such that a reset pulse follows the at least one shaking pulse and a further shaking pulse occurs between the end of the reset pulse and the beginning of the drive pulse, to provide further stabilization of the display (Machida et al., Col. 7, lines 49-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second display regions and control of Kuno et al. with the display region and control of Machida et al., to provide a clear, high contrast display with no image degradation. (Machida, Col. 2, lines 49-56, Col. 3, lines 16-35).

As for claim 15, Kuno et al. as modified by Machida et al. teaches all the limitations of claim 13.

Kuno et al. does not teach the voltage waveforms including a reset, shaking, further shaking, and drive pulse.

In the same field of endeavor (i.e. planar type displays) Machida et al. teaches an electrophoretic display (Fig. 1, #10) with a control (Fig. 12, #14, 16) for providing voltage waveforms (Fig. 9) to the pixels *each voltage waveform includes at least one further shaking pulse following the reset pulse and preceding the drive pulse.*

Col. 7, lines 38-40 of Machida et al. teaches superimposing a DC reset pulse over the initialization drive pulse. However, Machida et al. is silent as to the duration of either pulses. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to superimpose a short DC reset pulse in the middle of

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a long initialization drive pulse such that a shaking pulse precedes a reset pulse and a further shaking pulse occurs between the end of the reset pulse and the beginning of the drive pulse, to provide further stabilization of the display (Machida et al., Col. 7, lines 49-50).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second display regions and control of Kuno et al. with the display region and control of Machida et al., to provide a clear, high contrast display with no image degradation. (Machida, Col. 2, lines 49-56, Col. 3, lines 16-35).

As for claim 17, Kuno et al. teaches:

The electronic device of claim 13, further comprising:

At least one of a hardware or software button (Fig. 7B, #7) to allow a user to provide the at least one command (Col. 4, lines 15-29, Col. 6, lines 17-28).

As for claim 18, Kuno et al. as modified by Machida et al. teaches all the limitations of claim 13.

Kuno et al. does not teach the first and second display regions being electrophoretic displays, but does teach that other types of planar displays can be used (Col. 12, lines 10-15).

In the same field of endeavor (i.e. planar type displays) Machida et al. teaches an electrophoretic display (Fig. 1, #10).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the first and second display regions of Kuno et

al. with the electrophoretic display region of Machida et al., to provide a clear, high contrast display with no image degradation. (Machida, Col. 2, lines 49-56, Col. 3, lines 16-35).

As for claim 19, Kuno et al. as modified by Machida et al. teaches:

The electronic reading device of claim 13, wherein:

the at least one user command (Kuno et al., Fig. 7B, #7) includes an initialization part (Machida et al., Fig. 9, INITIALIZING DRIVE) and a display part (Machida et al., Fig. 9, DISPLAYING WHITE or DISPLAYING BLACK);

the at least one shaking pulse is provided in response to the initialization part; and
the drive pulse is provided in response to the display part (Fig. 9 of Machida clearly shows at least one shaking pulse and drive pulse during each INITIALIZING DRIVE and DISPLAYING WHITE or DISPLAYING BLACK period).

As for claim 20, Kuno et al. as modified by Machida et al. teaches all the limitations of claim 19.

Kuno et al. as modified by Machida et al. does not teach the first and second display regions comprising respective regions of a display screen, however, Kuno et al. as modified by Machida et al. does teach a single user command initiating the initialization part and display part.

At the time the invention was made, it would have been an obvious matter of design choice to a person of ordinary skill in the art to make the initialization part and display part separately user-initiated because Applicant has not disclosed that making the initialization part and display part separately user-initiated provides an advantage, is

used for a particular purpose, or solves a stated problem. Furthermore, one of ordinary skill in the art would have expected Applicant's invention to perform equally well with either the commonly user-initiated initialization part and display part taught by Kuno et al. or the claimed separately user-initiated initialization part and display part because both provide the function of user-initiating the initialization part and display part.

Therefore, it would have been an obvious matter of design choice to modify Kuno et al. as modified by Machida et al. to obtain the invention as specified in claim 20.

As for claim 22, this claim differs from claim 9 only in that claim 9 is a method and claim 22 is the method of claim 9 implemented on a computer. Therefore, for the purposes of examination, claim 22 is rejected in the same manner as claim 9 above.

Allowable Subject Matter

Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is the examiner's reason for allowance:

The closest prior art, Machida et al. and Zehner et al., both teach applying shaking pulses to an electrophoretic display, but do not teach the display region remaining substantially unchanged during these shaking pulses.

Therefore the prior art, either singly or in combination, does not teach the limitations of claim 16.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Zehner et al. (US Patent # 7,012,600) discloses an electrophoretic display and driving method.

Masazumi et al. (US Patent # 6,927,765) discloses an electronic book with two display regions.

Katase (US Patent # 6,762,744) discloses an electrophoretic display and driving method.

Hirosawa et. al. (US Patent #6,628,244) discloses an electronic book with two display regions.

Kondo et al. (US Patent # 6,512,497) discloses an electronic book with two display regions.

Harada et al. (US Patent # 6,072,476) discloses an electronic book with two display regions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT E. CARTER III whose telephone number is (571)270-3006. The examiner can normally be reached on 9AM - 5:30PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629

/R.E.C./